Pieraccini, M., & Cardwell, E. J. (2016). Impact Assessments for nature conservation: effective and reflexive? Public Law, 2016(1), 93-110.

Impact Assessments for nature conservation: effective and reflexive?

Introduction

The rhetoric of evidence-based policy making has permeated the UK government since 1997, and Impact Assessments (IAs) are an important aspect of this rhetoric. In line with the government aim to cut the red tape and avoid unnecessary bureaucracy, IAs are tools helping policymakers to understand the costs, benefits and risk of new government interventions. The Department for Business, Innovation and Skills defines IAs as both "a continuous process to help think through the reasons for government intervention, to weigh up various options for achieving an objective and to understand the consequences of a proposed intervention; and a tool to be used to help develop policy by assessing and presenting the likely costs and benefits and the associated risks of a proposal that might have an impact on the public, business or civil society organisations, the environment and wider society over the long term" [1]

However, to what extent are IAs in practice capable of being both a reflexive process and a rigorous effective tool to balance different options? This paper answers this question using an example from the environmental sector: IAs used for the designation of first tranche Marine Conservation Zones (MCZs), a new type of marine protected areas established under the Marine and Coastal Access Act 2009 (MCAA). The paper is concerned with the evidence used in the MCZ designation process; not the much discussed scientific evidence, but rather the socio-economic evidence that was at the basis of the IAs produced for the designation of MCZs. This socio-economic evidence has received less attention from committees, pressure groups and academics than the scientific data, but has however played a vital role in the designation of MCZs and therefore deserves to be evaluated.

In the case of MCZs it is essential that socio-economic evidence be rigorously considered primarily because the MCAA explicitly allows socio-economic considerations to play a part at the designation stage of marine protected areas. This move is both unique and unprecedented in domestic and European nature conservation law (reliant on a more technocratic approach and based on scientific grounds for designation only), and if future nature conservation legislation follows the MCAA approach, it is important to reflect on and learn from this first experience of accounting for socio-economic issues when designating conservation areas.

The evaluation of IA for MCZs presented in the paper is rather negative as a series of shortcomings are identified, rendering IAs weak both as a reflexive mechanism and a rigorous effective tool. These shortcomings stem from a variety of causes, -including the internal paradoxes of IAs (between rational decision-making and less regulation) and uncertainty (managerial, scientific, regulatory) leading to unreliable evidence that is mistrusted by those affected.

[1] Department for Business, Innovation and Skills. Impact Assessment Overview. URN 11/1112 (London 2011) at: http://www.mbsportal.bl.uk/secure/subjareas/mgmt/bis/12618311-1110-impact.pdf , para 1.

The structure of the paper is as follows: after a critical introduction to better regulation and the role played by IA in such policy context, the case study is introduced, discussing the process and content of MCZ IAs and the methods used for this study. The focus is then on IAs for the fishing sector. We provide a critical assessment of the nature of the socio-economic evidence in environmental decision-making at three different stages: one, evidence *production*, i.e. how evidence is gathered in a context of uncertainty; two, evidence *representation*, i.e. how evidence gets categorised in the IA; and three, evidence *appropriation*, i.e. how the IAs have been used and perceived by policy and political actors and the extent to which they have enabled reflexive practices as stated in the Impact Assessment Overview.[2] In so doing, the paper explores the role of uncertainty (scientific, regulatory and managerial) as well as the procedural and substantive legitimacy of the IA process.

Part I: Better Regulation and IAs

IA has become a key tool in UK regulatory improvement strategies in the past three decades. In order to understand its role, it is necessary to begin by positioning IA within the regulatory context in which it has developed. As will become visible by the outline presented below, the context of regulatory reform in the UK is a complicated and dynamic one. This has repercussions on the scope and effectiveness of its tools, first and foremost that of IA.

The logic of regulatory improvement has its roots in the mid-1980s with the publication of the White Paper *Lifting the Burden*.[3] The paper embodied the then Conservative Government's drive towards better regulation, based on the assumption that industry growth was impaired by the costs (burdens) imposed by regulation. Compliance Cost Assessments were introduced in 1986 to scrutinise the business costs involved in complying with proposed regulation. The emphasis on deregulation and on policy costs at this early stage of regulatory reform switched in the 1990s, when new initiatives were launched centred on better (rather than de-) regulation. In 1996 the Compliance Cost Assessment was re-framed to include the benefits of regulation as well as costs, and a risk assessment. The move from deregulation to better regulation was institutionally concretised with the establishment of the Better Regulation Task Force (BTRF) in 1997 under the labour government.

The BRTF, located in the Cabinet Office, was an independent advisory body to the government and its departments, with the role of ensuring that proposed regulation was underpinned by five key principles: proportionality, accountability, consistency, transparency and targeting.[4] If the principles of proportionality meant regulators should only intervene when necessary, and that of targeting meant that regulations should be focussed and should minimise side effects, the principles of accountability, transparency and consistency introduced elements of procedural legitimacy that were absent from the deregulatory reform of the 1980s. These principles called for regulation that was accountable to public scrutiny, that was predictable (so to give certainty

[2] Above n. 1.
[3] DTI, *Lifting the Burden*, Cmnd. 9571 (1985).
[4] BRTF, *Principles of Good Regulation* (BRTF 2003)

to those regulated) and that gave the opportunity of effective consultation prior to the development of regulatory proposals so that stakeholders' views and expertise could be incorporated in decision-making processes. Over the years the BTRF has played an important role in highlighting the best practice of IA. Indeed, the Legislative and Regulatory Reform Act 2006 incorporated provisions outlining the statutory principles of good regulation based on the work of the BTRF.

Therefore, if, with the deregulatory move under Thatcher regulatory improvement meant in substance less regulation in order to minimise costs to business, the better regulation move of the Blair government in the 1990s called for a balance between the risks, benefits and costs of regulation. However, further recent moves seem to have reverted back to deregulation. Two publications in 2005 are indicative of this reversal. With the publication of "Regulation-Less is More"[5], the 'one-in, one out' approach was promoted. This was intended to reduce regulatory burden by controlling the stock of regulation, balancing the creation of new regulations with the simplification/erasure of existing ones. With the "Hampton Review on Reducing Administrative Burdens: Effective Inspection and Enforcement"[6], the call for reducing burdens was also extended to issues of inspection and enforcement within a risk-based framework of regulation. Regulators were urged to reduce regulatory burdens by focussing on areas of higher risk. Since then, with the enactments of the Legislative and Regulatory Reform Act 2006 and the Regulation and the Regulatory Enforcement and Sanctions Act 2008, the emphasis on risk-based regulation and cost effectiveness has been put squarely onto the regulatory improvement agenda. The BRTF was replaced in 2006 by the Better Regulation Commission, a non-departmental public body, which has now also ceased to exist. At present, the Regulatory Policy Committee (RPC), established in 2009 and as an advisory Non-Departmental Public Body since 2012 – sponsored by the Department for Business Innovation & Skills- has the responsibilities, inter alia, of scrutinising IAs against the guidance set out by HM Treasury's Green Book [7] and the Better Regulation Framework Manual [8] providing an opinion to Government Ministers on the quality of analysis and evidence presented in the IA. The RPC has produced additional guidance containing seven recommendations related to the IA.[9] In

[5] Better Regulation Task Force, *Regulation-Less is More. Reducing Burdens-Improving Outcomes* (Better Regulation Task Force 2005) at: http://www.policy.manchester.ac.uk/media/projects/policymanchester/civilservant/less-is-more.pdf

[6] P. Hampton, *Reducing administrative burdens: effective inspection and enforcement*. (HM Treasury 2005) at: http://www.fera.defra.gov.uk/aboutUs/betterRegulation/documents/hamptonPrinciples.pdf

[7] HM Treasury, *Green Book: appraisal and regulation in central government* (HM Treasury 2014) at: https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-governent

[8] Department for Business, Innovation & Skills and Better Regulation Delivery Office, *Better Regulation Framework Manual: Practical Guidance for UK Government Officials* (Department for Business, Innovation and Skills 2013) at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/211981/bis-13-1038-better-regulation-framework-manual-guidance-for-officials.pdf

[9] The seven recommendations are: 1.Don't presume regulation is the answer, 2.Take time and effort to consider all the options, 3.Make sure you have substantive evidence, 4.Produce reliable estimates of costs and benefits, 5.Assess non-monetary impacts thoroughly, 6.Explain and present results clearly and 7.Understand the real cost to business of regulation. See: Regulatory Policy Committee, *Guidance- Regulatory Policy Committee: recommendations used when scrutinising impact assessments* (Regulatory Policy Committee 2014) at: https://www.gov.uk/government/publications/how-the-regulatory-policy-committee-scrutinises-impact-

regard to the MCZ IAs, the RPC provided a consultation stage opinion in 2012 and an opinion in 2013.[10]

Overall, the regulatory improvement strategies' current accent on less intrusive models of regulation raises a series of challenges of both a constitutional and effectiveness nature, influencing the procedural and substantive legitimacy of regulation. Constitutional values such as accountability, due process and, participation may be at risk in low-intervention regulatory styles. For example, Yeung has recently discussed some of the constitutional challenges brought about by Part III of the Regulatory and Enforcement Sanction Act 2008.[11] According to Yeung, administrative settlement in regulatory enforcement reduces the courts' supervisory and interpretative role and also diminishes the accountability of regulators' enforcement powers and opportunities for participation.

Besides constitutional issues, there are also dangers relating to the effectiveness of the better regulation framework. Baldwin, for example, has argued that attempting to reduce the obligation of businesses to supply information on their performance to regulators, while simultaneously asking regulators to target their enforcement activities more precisely may actually underplay the costs that arise as regulators have to generate data on business activities independently.[12] Furthermore, in asking regulators to focus their resources on issues that they consider to be the most risky, better regulation does not take into account the uncertain world in which regulators and business operate where many risks are unpredictable.[13]

It is against this background that IA is now considered. IA has attracted much attention both from academics and audit committees (National Audit Office and the Environmental Audit Committee's appraisals) because it has been championed as the key tool for regulatory improvement. The Better Regulation Executive's guidance defines IAs as both a tool and a reflexive process. As a tool, IAs enable policy-maker to present relevant evidence related to an intervention and consider its positive and negative effects and as a process, IAs help policy-makers to think reflexively about the intervention and its likely impacts in the public, private and third sector.[14] The key aspects of IAs are that they are evidence-based processes that inform decisions via cost-benefit analysis, rather than operating as substitutes for decisions. They function as "regulatory foresight", attempting to forecast the future consequences of current

assessments/regulatory-policy-committee-recommendations-used-when-scrutinising-impact-assessments#understand-the-real-cost-to-business-of-regulation

[10] The opinion in 2012 was negative stating that the costs for business of the proposed MCZ designations needed to be strengthened. See RPC12-DEFRA-1604 at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/251415/2012-12-03-RPC12-DEFRA-1604-Designation-of-Marine-Conservation-Zones-final.pdf. Validation of the IA was given in the final opinion delivered in 2013 see RCP12-DEFRA-1604(2) at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/265236/2013-10-02-RPC12-DEFRA-1604_2_-Designation_of_Marine_Conservation_Zones.pdf.

[11] K. Yeung. 2013. Better regulation, administrative sanctions and constitutional values (2013) 33 Legal Studies 312.

[12] R. Baldwin. 2006. Better regulation in troubled times (2006) 1 Health Economics, Policy and Law 203.

[13] J. Black, Tensions in the Regulatory State (2007) Public Law 58.

[14] Above (n 1).

regulatory choices.[15] Policy-makers are not the only ones to be informed by IA analyses. Indeed, an important part of IA is the potential for public scrutiny as stressed in the Better Regulation Framework Manual.[16] Public scrutiny is primarily carried out though public consultation exercises in the UK.

IAs therefore have the potential to be a bridge between effectiveness and deliberation as they are processes to inform policy-makers about the costs and benefits of proposed regulation, using rigorous evidence and encouraging participatory decision-making. However, as Prosser argues, the extent to which they fulfil this potential is debatable as, in practice, they tend to underplay some of the benefits of regulation that fall outside a quantification logic.[17]

The underlying assumption of IAs is that cost benefit analysis is the best measure of public policy. A well-known supporter of such arguments is Cass Sunstein. According to Sunstein, writing about what he terms "the cost-benefit state", cost-benefit analyses permeating US regulation have not only economic but also democratic and normative justifications.[18] The democratic and normative aspects of cost-benefit analyses relate, for Sunstein, to the fact that they make the consequences of regulation available for public inspection requiring regulators to clearly justify their positions, thereby increasing transparency and accountability and that they minimise interest-group power and reduce the cognitive distortions that cause ordinary people to irrationally assess risks.

CBA however triggers issues of commensurability and ethics. To compare costs and benefits, these need to be expressed in common units but this is not always possible if the comparison is between, let us say, a cultural benefit and an economic cost. Indeed, a number of academics[19] have argued that cost-benefits analyses oversimplify a complex world by privileging a particular estimate of costs and benefits so that instead of promoting rational decision-making and transparency "CBA will obscure the inevitable policy choices and value judgments that underlie government decision-making behind a veil of numbers".[20] This is because there are divergent estimates of costs and benefits in society that are difficult to subsume under a single metrics. As Ackerman and Heinzerling argue, [21]despite claims of impartiality, cost benefit analysis by its very methodology systematically disfavours protection of goods that are priceless and '"soft" variables tend to get lost in the equation.'[22] These criticisms bring into play a key ethical question: the extent to which is it right to translate certain values into numbers, and rate them against one another. Are all values commensurable? Although IAs

[15] J.B. Wiener, "The Diffusion of Regulatory Oversight," in M. A. Livermore & R. L. Revesz (eds), *The Globalization of Cost-Benefit Analysis in Environmental Policy* (OUP 2013).
[16] Above (n 9).
[17] T. Prosser, *The Regulatory Enterprise* (OUP 2010), Ch 10.
[18] C. R. Sunstein, *The Cost-Benefit State: the Future of Regulatory Protection* (American Bar Association 2003)
[19] See for example, M. Sagoff, *The Economy of the Earth* (CUP 1988); D. M. Driesden, The Societal Cost of Environmental Regulation: Beyond Administrative Cost-Benefit Analysis (1997) 24 Ecology L. Q. 545; O. McGarity, A Cost-Benefit State, (1998) 50 Admin. L. Rev. 42.
[20] A. Sinden, Cass Sunstein's Cost-Benefit Lite: Economics for Liberals, (2004) 29 Columbia Journal of Environmental Law 192, 193.
[21] F. Ackerman and L. Heinzerling*, Priceless: On Knowing the Price of Everything and the Value of Nothing* (The New Press 2004).
[22] Driesden, above n. 20, 558.

recognise this issue and therefore may contain qualitative information as well as quantitative, the imperative during the IA process is to quantify as much as possible and it is not clear what weight is given to qualitative data in the final analysis. Also, by translating everything into faceless costs and benefits without addressing or questioning existing patterns of economic and social inequality, to what extent do IAs take into consideration equity and distributional justice issues?[23]

Even setting aside issues of legitimacy and ethics, IAs remain problematic in a number of other respects. Over the years, the reviews[24] of the National Audit Office (NAO) that have examined large samples of IAs across different governmental departments in the UK have highlighted some of the shortcomings of the IA approach. For example, NAO has found that the quality of economic analyses is not always thorough, that the risks that policies seek to regulate are not always spelled out, that monitoring and evaluation procedures once regulation has been put in place are not always explained in detail and that enforcement issues are not deal with accurately.

Besides this, a key issue identified by NAO in a 2003-04 report [25]was that due to the fact that IAs were not well-integrated at early stages in the decision-making process, they justified, rather than informed and appraised, policy.[26] In so doing, IAs were a tick-box exercise for policy makers rather than a key procedural tool meaningfully impacting on decision-making. Besides, full integration into policy-making should not only entail doing an early IA, but also acknowledging the wider context of regulation. As regulations demand ongoing coordination, evolve with their implementation (often in unforeseeable ways) and depend on the effectiveness of enforcement, we question with Baldwin[27] the extent to which an IA that takes a 'one-shot' guess at the nature of a future regulatory regime provides a solid test of the strength/weakness of a proposed regulation.

Ultimately, the value of IAs depends on what we think the goals of better regulation should be. However, as outlined above, the regulatory improvement strategy in the UK does not have well defined boundaries. Its message has been subject to governmental reframing through time. At present, the emphasis is strongly on less intrusive styles of control and burden reduction by focussing on high risk cases. But this brings another problem: a contradiction between the rational and evidence-based regulation that the impact assessment is supposed to embody and

[23] C.R. Rodgers, Benefits, Costs and Risks: Oversight of health and environmental decision-making, (1980) 4 Harv. Envtl. L. Rev. 191.

[24] See, NAO, *Better Regulation: Making Good Use of Regulatory Impact Assessments* (2001-02 HC 329, November 15, 2001); NAO, *Evaluation of Regulatory Impact Assessments Compendium Report* 2004-05 (2004-2005 HC 341 Session, March 17 2005); NAO, *Evaluation of Regulatory Impact Assessments* 2006-07 (2006-2007 HC 606 Session, July 11, 2007); NAO, *Delivering High Quality Impact Assessments* (2008-2009 HC 128 Session, January 30 2009).

[25] NAO, *Evaluation of Regulatory Impact Assessments Compendium Report 2003-4* (2003-04 HC 358, March 4, 2004).

[26] *Evaluation of Regulatory Impact Assessments Compendium Report* 2003-04 (HC 358) and 2004-05 (HC 341).

[27] R. Baldwin, Is better regulation smarter regulation? (2005) Public Law 485.

the current emphasis on less regulation. Less intrusive policies, simplification and deregulation do not always go hand in hand with rigorous policies that demand a high level of certainty. [28]

If the above discussion on IAs highlight their complexity and inner contradictions, these criticisms become even more acute when IAs are used in the field of environmental decision-making. As the Environmental Audit Committee's report on IA highlights, "many environmental issues and impacts cannot easily be assigned a monetary value"[29]. The criticisms raised of payment for ecosystem services from both an ethical and technical viewpoint show the difficulties of putting an economic value on the environment.[30] Secondly, if as stated above one of the key deficiencies of IAs is that they present one-snapshot of future regulatory impacts that silences the dynamism, complexities and unknown risks of regulation, in the environmental field another layer of complexity is added as the environment is itself unpredictable, ecosystems dynamics are complex and subject to change and often there is no strong and definite scientific knowledge on key features or the ecological outcomes of any given change. These issues are exacerbated in the marine environment where spatial scales tend to be wider and boundaries less defined than in terrestrial environment, biological communities tend to be highly variable and less scientific data are available, as Jones points out.[31] Therefore IA runs the risk of overlooking and freezing into static categories a double uncertainty: the regulatory and the environmental. As mentioned above, this is especially true in the marine field due to the complexities of this environment, and this is why the below analysis on MCZs provide such an interesting case study.

Part II: IAs in the process of MCZs designation

Context:

Part V of the Marine and Coastal Act 2009 provides for the establishment of marine conservation zones (MCZs). These are to form an important component of an ecologically coherent network of Marine Protected Areas in the UK. MCZs can be designated for the conservation of marine flora or fauna; marine habitats or types of marine habitat; or features of geological or geomorphological interest by order by the Secretary of State.[32] Innovatively in nature conservation law, the socio-economic consequences of designation are listed as one of the potential grounds for designation. More specifically, section 117(7) of the MCAA states that "in considering whether it is desirable to designate an area as an MCZ, the appropriate authority may have regard to any economic or social consequences of doing so".

Due to this power, it is even more important than usual that IAs produce strong socio-economic evidence, as they can influence the choice of designation. However, from the early stages of

[28] R. Baldwin, 'Better Regulation: the search and the struggle', in R. Baldwin, M. Cave and M. Lodge (eds), *Understanding Regulation: Theory, Strategy and Practice* (OUP 2010), 315.
[29] Regulatory Impact Assessments and Policy Appraisal, Third Report of Session 2006-07, HC 353.
[30] K.H. Redford and W.M. Adams, Payment for ecosystem services and the challenge of saving nature (2009) 23 Conservation Biology 785.
[31] P. J.S. Jones, Marine protected area strategies: issues, divergences and the search for middle ground (2001) 11 Reviews in Fish Biology and Fisheries 197.
[32] Section 117(1).

MCZ designation and implementation, much more emphasis has been place on the strength and substance of the scientific evidence used. It is the scientific evidence informing the MCZ process, rather than the socio-economic that has attracted most attention and criticism. The key document outlining the type of scientific evidence needed for the designation of MCZs is the Ecological Network Guidance (ENG), written by Natural England and the Joint Nature Conservation Committee.[33] The ENG was written to support the four regional stakeholders groups in selecting MCZs. It individuates design principles for the establishment of the network of Marine Protected Areas and the scientific and policy basis for identifying MCZs. As MCZs can be designated to protect the full range of marine biodiversity in the UK seas, the ENG frames biodiversity in 23 broad-scale habitat categories and individuated examples of features of conservation importance (FOCI), i.e. habitats and species that are threatened, rare or declining, arguing that these should be afforded a higher level of protection.

Statutory nature conservation bodies have not been the only organisations shaping what counts as scientific evidence. A Scientific Advisory Panel (SAP) was established to provide independent expert advice on the strength of the scientific evidence. The SAP, created in 2009, was composed of expert marine scientists coming from different scientific disciplines in order to provide comprehensive advice, appointed by the Secretary of State in line with the Office of the Commissioner for Public Appointments (OCPA) principles and guidance.[34] The SAP provided feedback[35] to the regional stakeholders groups during the designation process and advice to Defra in November 2011 once the regional projects' final recommendations had been put forward. The SAP's advice contains some criticisms of the robustness of scientific evidence given for some recommended MCZs (rMCZs), of the uncertainty over conservation objectives of some features, and of the simplistic approach used to make management assumption with "recover" and "maintain" as the only optional objectives. "Maintain" meant that the feature met the desired state and should be maintained, while "recover" that the feature fell below it and should be recovered to favourable condition. This division is especially problematic when operating in the context of environmental uncertainty. As the SAP stated "Given that ecological change within rMCZs is inevitable, the stated goal should not be to return these areas to an unknown pre-existing state but to mitigate damaging practices within them."[36]

These criticisms by the SAP provided justification for the government to put forward for consultation only 31 sites out of the 127 proposed by the regional groups and designate only 27 MCZs in the first tranche. [37] However, as the Science and Technology Committee argued

[33]Natural England and JNCC, *Marine Conservation Zone Project: Ecological Network Guidance* (2010) http://jncc.defra.gov.uk/pdf/100705_ENG_v10.pdf

[34] The Commissioner for Public Appointments, *Code of Practice for Ministerial Appointments to Public Bodies* (2009) at: http://publicappointmentscommissioner.independent.gov.uk/wp-content/uploads/2012/02/New-Code-of-Practice-for-Ministerial-Appointments-to-Public-Bodies-August-2009.pdf

[35] Science Advisory Panel, *Assessment of the Marine Conservation Zone Regional Projects Final Recommendations* (2011) at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69451/sap-mcz-final-report.pdf

[36] Ibid.

[37] DEFRA, 'Marine Conservation zone 2013 Designations', at: https://www.gov.uk/government/collections/marine-conservation-zone-2013-designations

in 2013, this decision meant that the government had moved the goalposts mid-process: from requiring designation be based on best available evidence to requiring that robust full scientific evidence was used to designate MCZs. [38] A recent enquiry by the Environmental Audit Committee[39] has called for further evidence.

Although the scrutiny of scientific evidence seems justifiable on the basis that MCZs are nature conservation designations and that the order that institutes each must state the MCZs' protected feature or features and the conservation objectives, we argue that the socio-economic evidence has not been subject to the same stringent assessment. So far, some socio-economic issues have been highlighted by the 2014 Environment Audit Committee report stating that the evidence for socio-economic considerations is not well developed, especially the socio-economic benefits of designation, as recognised by Defra.[40]

Paying attention to the consideration of socio-economic data is vitally important as - considering s 117(7) of the MCAA that puts socio-economics squarely on the designation agenda - MCZ selection choices have in reality been the product of a balancing exercise between the scientific justification for, and socio-economic costs of, protection. Consequently, in order for good regulation to be implemented, it is imperative that socio-economic as well as scientific data is strong. As the section below demonstrates, there are however a number of shortcomings in the IAs that were used to provide socio-economic evidence that have so far not been highlighted. These shortcomings relate to different aspects of evidence -production, representation and appropriation- and it is with this tripartite distinction in mind that we provide our critical assessment below. Considering the breadth of MCZ IAs across different marine sectors, in order to provide a detailed analysis the focus of this paper is on one affected sector, the fishing industry. The decision to study the fishing industry was based on the fact that the fishing is the sector more likely to be affected by the designated MCZs.

Methods

The analysis of IA evidence below is built on primary qualitative research- both doctrinal and empirical- stemming from an Economic and Social Research Council-funded project on marine protected areas' designation and governance.[41] The Project, of a duration of three years, uses selected case studies (South-East England, Isles of Scilly and South-West Scotland) to investigate social and legal issues related to the establishment of new marine protected areas in the UK. In each case study area, the project team conducted doctrinal research of the legal and policy documents available regarding the designations of new marine protected areas, and

[38] Science and Technology Committee, *Marine Science, Ninth Report of Session 2012-2013* (HC 727) at: http://www.publications.parliament.uk/pa/cm201213/cmselect/cmsctech/727/727.pdf
[39] Environmental Audit Committee, *Marine Protected Areas* (2014-15, HC 221).
[40] Defra (MPA0027), para 34 at: http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/environmental-audit-committee/marine-protected-areas/written/5612.pdf
[41] ES/K001043/1. For more information about the project, please visit the project website at: http://www.ecologiesandidentities.com/.

an average of 15 semi-structured interviews with sea-users (primarily commercial fishermen but also recreational users, organisations and local communities), regulators (e.g. Inshore Fisheries Conservation Authorities, Inshore Fisheries Groups, Marine Management Organisation) and environmental bodies, both statutory and non-governmental organisations (e.g. Natural England, Scottish Natural Heritage, the Royal Society for the Protection of Birds). The decision to carry out semi-structured interviews was to allow new issues to emerge during the interview process. Next to the formal semi-structured face-to-face interviews, primary qualitative methods used in the project were ongoing informal conversations with various stakeholders and participant observation of local meetings and sea practices. A purposive sampling strategy was employed to select the interviewees because the aim was not to use a random sample to generalise at the level of the population, but to learn from the representatives of various sectors who held managerial and conservation roles or had used the resources in the local area for many years. The interview process was kept rather flexible and dynamic to allow for the free expression of the interviewees around the themes of research interest and for the formulation of follow up questions.

For the purpose of this paper, doctrinal analysis consisted of a detailed desk review of all the IAs documents at the national level for MCZs, and the empirical material comes from interviews with stakeholders in the two English case studies of the project.

IAs for MCZs: Evidence production

The methodology used for the MCZ's IA was largely the same across the four English regional projects. For fisheries, baseline economic data was created using official landings data, which was disaggregated by catches in the International Council for the Exploration of the Sea (ICES) rectangles (units of space measuring approximately 30nm^2 each). For larger boats, vessel monitoring system (VMS) data showing movements across these rectangles was used for further disaggregation; and for smaller boats (under 15m), a model called Fishermap was created to estimate the value of landings from given areas. Fishermap was based on mapping the activity of a sample of small-scale fishers in each of the regional project's to estimate catches across the sector (28% fishers in Finding Sanctuary[42], 47% fishers in Balanced Seas[43], 72%fishers in Net Gain [44]and 20% fishers in the Irish Seas region[45]).

The most important aspect of the IA was establishing the potential economic impacts of a designation. However, modelling these potential impacts was also very problematic. This is because the potential management of MCZs – that mechanism which would decide the impact

[42] Finding Sanctuary was the South-West regional project. See:
http://webarchive.nationalarchives.gov.uk/20120502152638/http:/www.finding-sanctuary.org/
[43] Balanced Seas was the South-East regional project. See:
http://webarchive.nationalarchives.gov.uk/20120502155440/http:/www.balancedseas.org/
[44] Net Gain was the North-East regional project. See:
http://webarchive.nationalarchives.gov.uk/20120502152708/http:/www.netgainmcz.org/
[45] Irish Seas was the Irish regional project. See:
http://webarchive.nationalarchives.gov.uk/20120502154706/http:/www.irishseaconservation.org.uk/

of any given protected area – was not decided on during the designation process. However, as management, which would mean the prevention or adaptation of certain practices within a protected area, is in itself the potential impact; clear information on likely management measures is vital for accurately predicting the impact of MCZs on fishers. However, there was no clear information throughout the entire designation process on what likely management measures might be. For the vast majority of MCZs, a range of management scenarios were provided. In most cases, this spanned a huge range between no management at all (the "low cost" scenario) and the complete banning of all fishing activity within an MCZ (the "high cost" scenario). These scenarios are so extreme, of course, as to be largely meaningless as a range in terms of potential impact. The range of management scenarios presented depended on the level of uncertainty as to what would be required to protect the features of an MCZ. This huge range of managerial uncertainty was a key aspect of practically all the proposed MCZ features. Of the 20 natural features listed for protection in the IA methodology,[46] the potential management of trawls and dredges is unknown across the full range between the high and low cost extremes for 14, and the potential management of lines, nets, pots and traps unknown between the full range of the high and low cost extremes for 10.[47]

IAs for MCZs: Evidence representation

A 'best estimate' single figure representing impact was then derived from this huge range. This was done by simply setting a midpoint between the high and low cost scenarios (complete ban of all fishing or no management at all) for each type of fishing gear, based on a recover objective being set for one or more of the features protected in an MCZ. It is notable here that if a 'recover' objective has been set, the scenario of no management is extremely unlikely. No management was however used as the default lowest cost scenario in all instances. If the Statutory Nature Conservation Bodies' advice contained some level of certainty that the fishing gear in question was not having a negative effect on the features to be recovered, the best estimate impact was set at the lower quartile, rather than mid-point between these two extremes. Because of the vast uncertainty involved in the potential management of MCZs, the numbers arrived at through the best estimate of economic costs (that impacts would be half way between unlimited access and a complete ban, or a quarter of the way between unlimited access and a complete ban if there was proof of no impact) are almost completely arbitrary.

The IAs further quantified the potential proportion of fishing activity that would be displaced by a MCZ: i.e. areas where any potential losses would be offset by simply fishing in another area. To do this, a generic figure of 75% displacement was applied to all MCZs around the English coastline, regardless of geographical specificities such as species prevalence, current, seabed and rock formations, existing protected areas (such as European Marine Sites), and other spatial management measures such as the Common Fisheries Policy (which attributes fisheries quota by ICES area, meaning fishers can only exploit their quota in a given number of ICES rectangles).

[46] *Regional MCZ Projects Impact Assessment materials: Annex H Approach for assessing impacts* (MCZ014)
[47] Ibid, 54.

Using these two assumptions (best estimate as a relationship between highest and lowest cost scenarios, and a uniform 75% displacement) amalgamated across gear types, a single figure for impact was arrived at. The potential positive impacts of MCZs (for example, an increase in target species prevalence in areas adjacent to an MCZ) were not quantified. Indeed, positive and negative impacts of MCZs were kept entirely separate in the IA report, with the uncertainty attached to positive impacts meaning they remained absent from calculations, and, in the nature of end-notes, were easy to skip past when reading the report.

The issues of the IA, especially when provided to inform decision-making at consultation stage and beyond, were compounded by the fact that the impact calculations had been feature based, and by the stage of the consultation, the government had made the decision to designate on the basis of only a fraction of the features originally proposed. The sites put forward for the first tranche, when suggested by the regional groups, covered 258 spatially distinct features. By the time of the consultation, this had been reduced to approximately 143. The IAs, however, still presented the potential impacts of designation of the full range of features, and the management necessary to protect these. This meant that the management scenarios presented were not only vastly uncertain, but at the point of designation, also based on incomplete information.

The role of the IA in designation decisions: how the IA evidence was used

After being proposed by the regional groups, prospective MCZs were split into two groups, based on the results of the IA. These were sites in the bottom three quartiles for quantified costs, and sites in the top quartile for quantified costs as stated in the IA. Any sites in the top quartile for quantified costs as given in the IA had to meet more stringent ecological criteria in order to be designated. If sites across either of these groups were considered to have potential high non-quantified costs (such as on non-UK fleets, which broadly did not contribute to the IA and only partially to the designation process via consultative processes), they were automatically excluded from designation in the first tranche and classed as needing further consideration before potential inclusion in a later tranche.[48]

The way in which the IA evidence was used in designation can be illustrated by comparing the statutory nature conservation bodies' advice given on the regional groups' proposed designations, and the 31 sites that the Government put forward for consultation for tranche 1 designation. The statutory nature conservation bodies recommended that 57 of the 127 potential MCZs (with sites with extensions and sub-sites counted once) were either at risk or at high risk, and had a stronger case for earlier designation. Of these sites recommended for early designation by the statutory nature conservation bodies, many (25) were not put forward for consultation. Only 20 of the sites recommended for early designation by statutory nature conservation bodies put forward for consultation were ultimately designated (although the majority of these were designated for fewer features than originally identified by the regional groups).

[48] DEFRA, *Steps for addressing marine conservation zone proposals* (DEFRA 2013) at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/221041/pb13896-mcz-selection-process.pdf

Thus 37 of the 57 sites considered to be at risk and having a strong case for early designation by the statutory nature conservation bodies were not designated. Most of them (30 sites) were not designated for socio-economic reasons.[49] Of these, the majority (19) were not designated due to potential unquantified costs. This broad statement can cover a variety of scenarios, as one local regulator describes in the case of an MCZ put forward by their local group, and widely supported by local fishermen, that almost was not designated:

"[This MCZ] was the last one to be designated. It only got designated at the very last minute, and that was because of a chance conversation that [a local regulator] was having with someone at Defra and he'd said 'we're not accepting that one that will be in the next stage'. tranche 2, as they call it. He said 'What? Why?' He said, 'well, because we're not happy with all the evidence'. So he got straight on to me, and I then rang up [name removed] at Defra and said 'look, this is ludicrous because we've got the evidence for that and we've sent it all off to you'. 'Oh' he said 'yes, but the fishermen in [town removed] weren't properly consulted over it'. I said 'okay', I said, 'ring up the Chairman of their Producer's Organisation' - and I mean luckily I know him, he's a good friend of mine, so he said 'yes, yes, yes, we've got no objections to that'. and it went through right at the last minute, it was the very final one that was designated... the Government Science Advisory Panel gave us 5 out of 5 for every single one of our sites for the quality of the [scientific] evidence… so there was no reason not to designate that one. " (Interview extract with Isles of Scilly IFCA member, April 2014).

11 of the 37 undesignated recommended sites were not designated for reasons based explicitly on the results of the IAs.[50] Only 7 of the 37 SNCB recommended but non-designated sites were not designated for non-socioeconomic reasons. The importance that the IAs played in the Government's decision making process is especially notable if we consider that socio-economic concerns had already been explicitly considered in the initial choice of the 127 sites put forward by the local stakeholder groups for designation. In the initial choice of sites, when deciding which recommendations to put forward, stakeholder groups could negotiate areas balancing socio-economic and ecological issues, thanks to section 117(7) of the MCCA. As one local regulator remarked:

"Socio-economic considerations played a huge part. It was an interesting process in that it was a bottom up led approach, and right from the sites that were even going forward for consideration, at that point socio-economic considerations were there as well. So there was

[49] More specifically, four of these sites had their designation refused: for three of these this refusal was for socio-economic reasons and for one because the Statutory Nature Conservation Bodies' advice was later revised. 13 further sites had their designation placed on hold – meaning that they were not to be considered in any tranches until further notice. 9 of these sites were on hold due to potential unquantified socio-economic costs; three due to uncertainty if the advantages of designation justified the socio-economic costs; and one because of poor data. 20 further sites were not put forward for designation in the first tranche, but had potential to be designated in later tranches: of these, 10 were not designated due to potential unquantified socio-economic costs; 5 were not designated due to uncertainty if the advantages of designation justified the socio-economic costs; 4 because of poor data certainty; and 1 because the Statutory Nature Conservation Bodies' advice was later revised.

[50] 8 were either put on hold for possible later designation if the potential ecological advantages of designation would justify the socioeconomic costs, and 3 were dismissed out of hand as not justifying their socio-economic costs.

scientific information put forward for sites but at that stage a number of those sites were thrown out because of socio-economic considerations, and obviously later in the process you have to consider that again. And if we were going to bring any regulatory management in, we would have to look at the impact on livelihoods again." (Interview extract with Sussex IFCA member, July 2014).

Therefore, the socio-economic evidence was somewhat double-counted. However, it was evidence that was, according to some stakeholders we interviewed, flawed. Two examples are reported below.

Part III: Fisheries in selected case studies in South-East England

This section presents two examples of MCZs proposed for the 2013 tranche to show some of the shortcomings of the IA process. Both examples are inshore coastal site in the Eastern English Channel. The first, Beachy Head East, had strong support from local fishermen, and the second, Hythe Bay, had strong local opposition.

Beachy Head East

One of the designations recommended by the Balanced Seas stakeholder group and advised by the SNCBs but put on hold by the government, with no current indication of future designation, was Beachy Head East. Beachy Head East is an area of highly biodiverse chalk reef and blue mussel bed with a surface area of 193.27 km^2. The Government justified its decision on the basis that there was uncertainty as to whether the advantages of designation would justify the socio-economic costs. Interestingly, the designation of the Beachy Head East MCZ had wide support from local fishermen. Indeed, its instatement as a protected site had originally been suggested by fishermen two decades ago, long before the MCZ process began. In response to this, the local regulator began gathering scientific evidence and planning the potential closure of the site to certain gears as a locally regulated sensitive area. When the MCZ process was announced, the regulators decided it was best to feed all the evidence gathered so far on the planned protected areas at Beachy Head East, rather than having two parallel processes for site designation. As one fisherman who sat on the MCZ regional group describes:

"We tried to get [Beachy Head East] protected through a byelaw 25 years ago. It's quite a delicate habitat so we wanted to prevent beam trawling. Everybody thought it would be a dead cert this would go through. The thing about this area is all the fishermen were pro [the site], which is quite good. We went through the [stakeholder] process and thought it would get through. Then it went to [the Government] and disappeared. It was because of the impact assessment; they said the socio-economic costs were too high. The socio-economic costs for who? The beam trawlers? They don't use it that much, so it can't be that valuable... All the fishermen here, we were dismayed that it didn't get though." (Interview extract with South-East fisherman, July 2014).

During the Balanced Seas process, the socio-economic implications of designating Beachy Head East had been discussed at length, and the fishers involved had been happy with what they considered the likely impact of management (the banning of heavy trawling and dredging

on the site) would be. The IA, however, gave a socio-economic cost figure derived from a range of management measures that fell between a low cost scenario (a zoned closure to trawls and dredges- the scenario suggested by the regional stakeholder group in the South-East 'Balanced Seas') and the high cost scenario (total closure of the MCZ to all fishing). The high cost scenario was suggested to protect infralittoral fine sand. Ironically, this feature was not proposed for designation but nevertheless the site was not designated in 2013.

Hythe Bay

The second example is Hythe Bay, which was put forward for the protection of subtidal mud supporting seapens & burrowing megafauna that are rare in the South-East. The site area is of km2 41.55 and supports a mixed fishery (nets and pots used by beach-based vessels and bottom trawlers used by harbour-based vessels). Much like Beachy Head East, the site was recommended for designation by the Balanced Seas project. Unlike Beachy Head East, Hythe Bay was put forward for consultation by the Government. It was however 1 of 4 sites out of the 31 put forward to consultation that was not designated in the 2013 tranche. The reason was that the site attracted strong opposition from the local fishing fleet, primarily due to the inaccuracy and unreliability of socio-economic data used in the IAs.

Local fishermen interviewed expressed these criticisms clearly:

"The socio-economic data produces in the impact assessment suggests that the economic interests to the UK Commercial fishing sector would be £3,000. Not only is this very poor research on behalf of the report owner, it is also unsubstantiated. There is no documentary evidence provided to back this calculation up". (Net fisherman, interview April 2013)

A Trawler fisherman made a similar point: "They lied about the socio-economics [for Hythe bay]. £3,000 [as economic loss if the site was designated] is nothing… £3,000? Where did they get that from? It's so two faced... we have no capacity to adapt. Their evidence was not good at all." (Trawler fisherman, interview April 2013)

The fishermen questioned the procedural legitimacy of the process questioning the obscure way in which the figures were calculated and arguing that "some people never heard anything [about the Impact Assessments] until the very last meetings. They did not know what was going on." (Potter, interview April 2013)

"I don't believe anything they say, it is all done under cover, so suspicious…this is not transparent at all on their side." (Trawler fisherman, interview April 2013)

Finally, the issue of displacement was discussed, with local fishers opposing the blanket national approach used in the IAs that was based on the assumption that 75% of the value of fishing that has to stop in an MCZ will be displaced elsewhere and therefore only 25% of economic activity will be lost. According to the fishermen of Hythe Bay, these assumptions did not reflect the real impact of displacement on small scale fishers in the area. "We have no capacity to adapt. If it goes through, I don't think I can carry on fishing. That would be it when you have a small boat. We would need to move completely away." (Interview extract with Net fisherman, April 2013). Another trawler fisherman reiterated the same issue saying,

"displacement will have all the boats fishing in a smaller area and this cannot happen, it is impossible". (Interview extract with trawler fisherman, April 2013).

It can be concluded that the IAs generated mistrust and uncertainty for the fishermen of the South-East. In Beachy Head East, this uncertainty was primarily at the evidence appropriation stage (why, despite widespread support for the designation of the MCZ, was Beachy Head East not designated in the first tranche?). In the case of Hythe Bay, uncertainty permeated the evidence production stage (how accurately was the information for the assessments collected?) and the evidence representation stage (how accurately were their potential economic losses categorised in the IAs?). The two case studies therefore demonstrate shortcomings at different stages in the assessment of socio-economic data and the weaknesses of IAs both as a reflexive mechanism and a rigorous/effective tool in providing cost and benefit of proposed designations.

IAs in the context of uncertainty

The IA used in the MCZ process raises important questions regarding the procedural and substantive legitimacy of environmental decision-making in the context of multiple uncertainties. Reducing uncertainty is extremely difficult, as it happens at different levels and is of different kinds: evidential uncertainty, scientific uncertainty and managerial uncertainty. The IAas were made using a variety of assumptions (e.g. the blanket approach to displacement, assumptions about the most likely management scenario, assumptions regarding the strengths of compliance and enforcement), drawing only on partial socio-economic data and partial scientific certainty. Balancing socio-economic and ecological needs in such context renders the task of designating marine conservation zones – or any nature protection area - a difficult one, and perhaps explains the government decision to operate a certain caution and proceed slowly, with only 27 designations in the first tranche.

As discussed in part I of this paper, the practice of IA is built on a logic that requires rationality and certainty as IAs are the offspring of the regulatory improvement agenda in the UK, which demands efficiency and objective evaluation of risks and impacts. However, artificially reducing uncertainty through techniques of standardization and the simplification of existing and future socio-ecological scenarios brings problems that distance IAs from both their reflexive and effectiveness aims and weakens their procedural and substantive legitimacy. IAs for MCZs have not been an instrument of social learning, helping regulators and marine users to get a sense of the various options and trade-offs, because the validity of these very options was contested as demonstrated in the Hythe Bay example. The IAs have further not worked to strengthen stakeholder engagement and procedural legitimacy in the MCZ process, with stakeholders in the Beachy Head East case study feeling that the use of the IA numbers to justify non-designation meant their desire to protect their local environment had been ignored. It may be argued that IAs that attempt to find a trade-off between ecological and socio-economic concerns are inevitably going to raise criticisms from those economically affected, but the Beachy Head East example shows that it is not as simple as this, with fishermen highly supportive of the designation of the site.

These arguments recall established criticisms in the regulation and sociological literature regarding both CBA, as considered in Part I above and the role of risk and uncertainty in environmental decision-making. Wynne, for example, considers the multidimensionality of uncertainty, and talks of indeterminacy to represent the unpredictable behaviour of social and ecological systems[51]; Fisher,[52] in discussing the role played by risk assessments in the processes of standard setting, points out that ecological and social phenomena are holistic and dynamic systems made of different inter-relationships and their indeterminacy may not be easily capture by predictive analyses such as risk analyses or regulatory IAs; and Lee is critical of the dichotomy created in EU law between technical risk assessment and political risk management, arguing that "it is simply not possible to draw clear lines between the objective and the subjective, between the technical and the political elements of the decision: both elements imply ethical commitments as well as matters of substance, and fact finding is not inevitably prior to and independent of normative judgments"[53].

Improving IAs for MCZs, and other environmental regulations, is therefore not only a matter of intensifying the level of scientific and socio-economic knowledge that these are based upon, but also addressing the epistemological and normative questions of who defines the boundaries of uncertainty and how they do so. The reflexive element of IAs should start at earlier stages, not only concretised at the moment of deciding and weighting up different policy options, but present at the moment of addressing the key question of what are acceptable uncertainties in a particular socio-ecological context. This is a normative judgement that would benefit from public deliberation but in IAs this usually belongs to the pre-political stage. Indeed, though IAs have in-built elements of public consultation and emphasise the transparency of the process, their democratic strengths can be questioned as the consultation and the fostering of public debate happens after the decisions of which assumptions (on management, on enforcement etc…) can be made and of what count as acceptable uncertainties. In other words, the process of the IA is currently usually a given, and it is only the implications of the objective, unquestionable and pre-established results that are open to consultation.

The de-politicisation of these matters and the simplification of the issues rendered the MCZs' IAs a weak tool, both normatively and technically, so it is not surprising that they have been contested. But even assuming that parameters to define and consider regulatory, environmental and managerial uncertainties can be agreed in a deliberative forum, problems will continue to permeate IAs. First of all, because of the paradox between rational and efficient decision-making that IAs embody and the complex socio-ecological systems that are under analysis, the inherent uncertainty of which defies simplification and abstraction. Secondly, because of the difficulty of defining uncertain benefits in quantitative terms and, if left in a qualitative form, the resulting incommensurability between quantitative costs and qualitative benefits.

[51] B. Wynne, Uncertainty and environmental learning: reconceiving science and policy in the preventive paradigm, (1992) Global Environmental Change 111.
[52] E. Fisher, Drawing by Numbers: Standard Settings in Risk Regulation and the Pursuit of Accountable Public Administration, (2000) 20 Oxford Journal of Legal Studies 109, 116.
[53] M. Lee, Beyond Safety? The Broadening Scope of Risk Regulation, (2009) 62 Current Legal Problems 242, 244-245.

Part IV: Conclusion

IAs are the backbone of the regulatory improvement strategy in the UK. However, as identified in the literature there is a paradox in this: while regulatory improvement strategy attempts to minimise regulatory burdens, IAs aim at making decision-making rational, evidence-based and transparent, which is not an easy task if regulation is reduced. In the field of environmental decision-making, another paradox is added: if IAs rely on the logic of rational cost-benefit analysis, socio-ecological systems tend to operate in ways that are highly uncertain.

As the two case studies in the South-East of England show IAs in the field of nature conservation are far from being a successful bridge between reflexivity and effectiveness, increasing mistrust of MCZs in fishermen. To produce data, IAs for MCZs ended up representing a partial reality, fixing certain parameters, making assumptions, de-contextualising many issues and generating mistrust in those who are affected by the proposed regulation. In so doing, IAs for MCZs resulted in an abstraction that is not only normatively questionable - as these assumptions are made in a pre-political stage - but also technically not particularly valuable.

In general, IA in environmental decision-making plays an important role but not a central one. However, in cases like MCZs, where socio-economic issues are considered at the designation stage, IAs assume a more prominent role and their shortcomings become even more problematic because of their weight. If current trends in nature conservation law and policy continue so that socio-economic issues are valued at the designation stage of conservation, IAs are likely to play a key role in deciding which areas are to become protected. Therefore, if the IAs short-comings identified in this paper are not resolved, there could be negative consequences for both the health of our environment and due democratic process.